What is claimed is:

1. A lens unit for a scanning device, comprising:

a frame having a hollow cylindrical shape, the frame being defined with a lens contact portion therein;

a lens accommodated in the frame with contacting the lens contact portion defined in the frame; and

a retainer accommodated in the frame to retain the lens in position, the retainer having a hollow cylindrical shape, one end side face of the retainer contacting a peripheral portion of the lens received by the frame, an other end portion of the retainer being secured to the frame so that the retainer presses the lens toward the lens contact portion of the frame to fix the lens to the frame,

wherein deformation of the frame, lens and retainer due to the load generated as the retainer presses the lens absorbs deformation of the frame, lens and retainer due to temperature change at least within a predetermined temperature range so that a fixed status of the lens with respect to the frame is not released due to the temperature change within the predetermined temperature range.

2. The lens unit according to claim 1, wherein the scanning device is a multibeam scanning device which simultaneously scans a plurality of light beams emitted by multiple light emitting

elements on a scan target surface by dynamically deflecting the light beams by use of a deflecting system, the lens unit being used for each of the multiple light beams.

3. The lens unit according to claim 1, wherein the other end portion of the retainer is formed of a screw thread portion, and where an inner surface of the frame at a portion facing the other end portion of the retainer is formed of a screw thread portion to engage with the screw thread portion of the retainer.

4. The lens unit according to claim 1,

wherein the lens has a linear expansion coefficient ρ_1, a longitudinal elastic modulus E_1, and a cross-sectional area S_1 orthogonal to an optical axis direction,

wherein the frame has a linear expansion coefficient ρ_2, a longitudinal elastic modulus E_2, and a cross-sectional area S_2 orthogonal to the optical axis direction, in which the optical system is installed,

wherein the retainer has a linear expansion coefficient ρ_3, a longitudinal elastic modulus E_3, and a cross-sectional area S_3 orthogonal to the optical axis direction, the retainer applying the lens with a load P,

wherein the lens unit being configured to satisfy following condition:

$$\Delta t\{\rho_2 L_2 - (\rho_1 L_1 + \rho_3 L_3)\} < P\left(\frac{L_1}{E_1 S_1} + \frac{L_2}{E_2 S_2} + \frac{L_3}{E_3 S_3}\right),$$

wherein,

L_1 represents a length of the lens from a contact point of the lens and the lens contact portion of the frame to a contact point of the lens and the retainer in the optical axis direction at a predetermined temperature t_0,

L_2 represents a length of the frame from the contact point of the lens and the lens contact portion of the frame to a lens side end of the other end portion of the retainer at a predetermined temperature t_0,

L_3 represents a length of the retainer from the contact point of the lens and the retainer to the lens side end of the other end portion of the retainer at a predetermined temperature t_0,

wherein $L_2 = L_1 + L_3$, and

wherein Δt represents a change of temperature with respect to the predetermined temperature.

5. The lens unit according to claim 4, wherein materials and lengths of the frame, lens and retainer are determined to satisfy a following condition:

$$\rho_2 L_2 = \rho_1 L_1 + \rho_3 L_3 .$$

6. The lens unit according to claim 4, wherein the predetermined temperature range is a range from -20°C to +70°C.

7. The lens unit according to claim 4, wherein the predetermined temperature t_0 is closer to the upper end of the predetermined temperature range than the lower end thereof, and wherein $\rho_2 L_2 < \rho_1 L_1 + \rho_3 L_3$.

8. The lens unit according to claim 4, wherein the predetermined temperature t_0 is closer to the lower end of the predetermined temperature range than the upper end thereof, and wherein $\rho_2 L_2 > \rho_1 L_1 + \rho_3 L_3$.